

**United States**  
**Environmental Protection Agency**  
**Office of Transportation and Air Quality**  
**National Vehicle and Fuel Emissions Laboratory**  
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**Thermocouple Verification Procedure**

This procedure is written for the Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory (NVFEL) internal use. The use of specific brand names by NVFEL in this procedure are for reference only and are not an endorsement of those products. This document may be used for guidance by other laboratories.

**NVFEL Reference Number**

037

**Implementation Approval**

Original Procedure Authorized by EPCN # 270 on 03-21-2002

**Revision Description**

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## 1. Purpose

The purpose of this procedure is to describe the steps for verifying thermocouples in Sites #508 and #516.

## 2. Test Procedure

101 At the monitor, open MTS Template by double-clicking on the “MTS Template” button.

102 By the engine, set up and connect the “Fluke 743” to the system.

103 Press the Fluke “On” power button.

Note: See Attachment A for a graphic of the Fluke 743 and its buttons.

104 Press the “MEAS/SOURCE” button.

105 Press the “TC/RTD” button.

106 On the screen of the Fluke, use the function pad to select the thermocouple type you are going to verify. Then press the “ENTER” button.

107 With the use of the function pad choose the thermocouple source mode by selecting “LinearT”, of the two choices on the menu. Then press the “ENTER” button.

108 On the Fluke, connect the appropriate line to the thermocouple, and the other end into the system. See Figure 1 for the line types.



Figure 1  
“J” & “K” type leads

109 On the monitor screen, enter value in degrees.

- 110 Press the “O” (zero) button.
- 111 On the screen, select the channel connected to the Fluke.
- Note: Refer to the list of thermocouple channels found in the file cabinet of either Site 508 or 516.
- 112 Enter the value in degrees. (0-250 J type; 0-600 K type)
- 113 Press the “New point” or “Edit point”.
- 114 Check current EU value for consonance.
- 115 Highlight the line of the thermocouple.
- 116 Hit “Collect Data” button.
- 117 A deviation appears at the end of the panel. Highlight “0” (zero) line.
- 118 When done, hit “Verify Only” button on top right of screen.
- 119 When “Save Information to Calibration Data Base” appears, hit “OK”.
- 120 Standard Used”: “Fluke When the “Enter Cal Information” panel appears, enter information for “Calibration”.
- 121 Then hit “OK”.
- 122 When the “Calibrate” screen appears, check that the “Last Cal Date” has changed on the thermocouple being verified.

### 3. Acceptance Criteria

The thermocouple line reading of the Fluke calibrator must match that of the MTS system.

## Attachment A

**Fluke 743**